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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/581,563

06/02/2006

Michael Gavin Proctor

71,049-012

6206

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7590

08/10/2011

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EXAMINER

MOORE, MARGARET G

ART UNIT

PAPER NUMBER

1765

MAIL DATE

DELIVERY MODE

08/10/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/581,563 | Applicant(s) PROCTOR ET AL. | |
| | Examiner MARGARET MOORE | Art Unit 1765 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 to 9, 11 to 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 to 9, 11 to 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. Initially the Examiner would like to express her most sincere apologies for indicating that she would allow the claims in their most recently amended form (see applicants' amendment 8/2/11). The Examiner is particularly apologetic since she was the one who proposed the amendment in a telephonic interview initiated by the Examiner. At the time that she suggested amending the claims to a siloxane having a viscosity of greater than 1,000,000 centistokes to place the claims in condition for allowance, she had misread the teachings in Woerner and had incorrectly thought that the upper viscosity limit was 500,000 mPa.s rather than 500,000 Pa.s (or 500,000,000 mPa.s). Even upon realizing this mistake the Examiner tried to find reasons for allowance. But, as indicated below, upon extensive consideration the Examiner simply could not make a determination of unobviousness as she simply does not find clear and convincing evidence of unobviousness over the combination of references. To ensure the most complete and thorough record of examination and to ensure the validity of any patent which may arise from the instant application, the Examiner thought it best to "err on the side of caution" and make the following rejection.

2. Claims 1 to 9 and 11 to 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woerner et al. in view of Cornelius et al.

Please note that the rejection below is a copy of that made in the Examiner's Answer dated 2/26/10.

From MPEP 2111.03, for the purposes of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising.". Since the specification stresses only the exclusion of reinforcing fillers (which are explicitly excluded by the claims), the claimed composition will be interpreted as "comprising" the components recited therein (again, while excluding any reinforcing fillers).

Woerner et al. teach a silicone composition having improved heat stability (title) and containing a polydiorganosiloxane having two alkenyl groups, a non-reinforcing filler, a crosslinking agent and a nitrogen compound. See for instance column 1, lines

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47 and on. Column 3, lines 11 and on, teach a general formula for the polydiorganosiloxane that overlaps with, considerably, the “x+y” range in the instant claims such that one having ordinary skill in the art would have found the selection of a polymer meeting (i) in claim 1 to have been obvious and well within routine experimentation.

Woerner et al. require a non-reinforcing filler which can include clay (column 3, lines 27 and on). While Woerner et al. specifically teach clay (a generic group of fillers) they do not specifically teach kaolin (a form a clay, also known as china clay or white clay). Note that these non-reinforcing fillers can be silylated (column 3, line 35). The composition of Woerner et al. includes reinforcing fillers only as an optional ingredient (column 6, lines 40 and on).

The Examiner draws attention to the working examples, for instance Example 9 on column 9. This forms a silicone elastomer sheet containing a vinyl terminated polydimethylsiloxane, talc (as a non-reinforcing filler), an SiH siloxane and Pt catalyst (curing agents meeting (iii)). *It is important to note that this composition is free of reinforcing fillers.* This silicone elastomer¹ prepared by Woerner et al. differs from that in claim 1 in that it contains talc as a non-reinforcing filler rather than treated kaolin.

Cornelius et al. teach a method of improving heat stability of a silicone elastomer. These references represent analogous art as they both deal with the heat stability of silicone elastomers. This reference teaches the addition of surface treated white clays. Column 4, line 30, specifically teach kaolin clay. This surface treated kaolin clay meets (ii) as claimed. Column 4, lines 52 and on, teach that the pretreated white clay is useful in improving the heat stability of the silicone elastomer.

One having ordinary skill in the art would have been motivated by the teachings of Cornelius et al. to use surface treated white clay, or surface treated kaolin, as the non-reinforcing clay filler found in Woerner et al. in an effort to obtain the known benefits and properties thereof, including improved heat stability. Motivation arises both from

the fact that the non-reinforcing fillers taught in Woerner et al. include clays in general and the fact that Woerner et al. is concerned with heat stability. The combination of the specific clay filler in Cornelius et al., combined with the silicone composition of Woerner et al., would have yielded predictable results to one having ordinary skill in the art. In this manner claim 1 is rendered obvious by this combination of references.

For instance, it would have been obvious to one having ordinary skill in the art to use the surface treated kaolin of Cornelius et al. in place of the non-reinforcing talc filler in Example 9, with an expectation of obtaining a comparable composition having improved heat stability. Note that the sheet formed in Example 9 is specifically referred to as an elastomer. In this manner the skilled artisan would have found claim 1 obvious.

For ease in expressing the obviousness rationale, the Examiner notes that she has specifically referred to Example 9 in the above rejection. The totality of the teachings in Woerner et al. also are sufficient for rendering the claims obvious. Note for instance that the abstract and the claims indicate that elastomers can be formed from the silicone composition *in the absence of a reinforcing filler*. Column 6, lines 40 and on, indicates that mechanical strength is increased *if* reinforcing fillers are included, but this does not require such fillers. Note too that a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments.

As the above rejection applies to the current claims the Examiner notes that even with the amendment to the claims requiring a specific viscosity, this is well within the range of Woerner et al.

The Examiner has given considerable thought to applicants' evidence dated 4/26/10. This consists of various references that applicants assert support their position that a silicone rubber will/should contain a reinforcing filler.

¹ Please note that paragraph 2 of the specification indicates that "silicone rubber" (as used in the claim) is often referred to as silicone elastomer (as used in the prior art).

The Examiner realizes that reinforcing silica is a common ingredient in silicone rubbers. The Examiner simply cannot believe, though, that would be unheard of or completely unobvious for one having ordinary skill in the art to prepare a silicone rubber without a reinforcing silica. One only has to prepare the silicone rubber in accordance with that *claimed* by Woerner to arrive at such a formulation. As the Examiner has noted before the *claimed* composition in Woerner does not require silica. Since the inventors in Woerner et al. are clearly “one having ordinary skill in the art” isn’t their disclosure just as compelling, or even more so, than the references provided by applicants? It is also confusing to the Examiner why a corporation would seek patent protection on a formulation that is not useful or commercially viable.

With regard to the specific reference cited, the Examiner notes that these references do not provide the clear support applicants allege.

For instance page 431 of Noll says “preferably reinforcing fillers” are used. This does not say that they are required and as applicants are aware references are not limited to their teachings of preferred embodiments. Note for instance that Noll specifically refers to properties of semi-reinforcing fillers as compared to reinforcing fillers.

The Examiner agrees that The Silicone Elastomer/Rubber reference (3) states that fillers are contained in silicone elastomers/rubber the Examiner does not agree that this says that they require reinforcing fillers. The article refers to both reinforcing and extending, giving preference to neither and requiring neither.

With regard to the Reference 4, applicants should note that this is a reference advertising/noting the properties of a filler rather than an article about silicone rubber. It is a product sheet for a filler that touts the benefits of that filler. Obviously such a reference would make no mention of other fillers. This reference does not teach away from other fillers or indicate that only the reinforcing filler HDK can be used to achieve any useful silicone rubber.

With regard to Reference 5, the Examiner disagrees with applicants’ assessment that this reference “clearly indicates that only upon addition of a reinforcing filler is a typical siloxane converted into an elastomer”. Most notably the Examiner takes issue

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with applicants' use of the term "only". This reference does not state that ONLY a reinforcing filler can be used to form an elastomer.

With regard to Reference 6, the Examiner notes that this states that "many" manufacturers use reinforcing fillers. It follows then that not all manufactures use reinforcing filler.

For Reference 7, the Examiner does not believe this supports applicants' position for two reasons: 1) it states that "most", not all, networks contain a filler and 2) it states that the filler can act as a reinforcing agent or as an additive for certain properties. This means that the filler need not act as a reinforcing agent..

In reference 8 the teaching is that PDMS requires in "most" (not all) applications to be reinforced with fillers.

The Examiner notes that she, too, can cite references in which a reinforcing filler is not required in a silicone rubber/elastomer. See for instance US Patents 4,156,674 (col. 2, line 50) and 6,410,641 (col 11). Both of these references teach the addition of either reinforcing or non-reinforcing silica fillers,. See also 5,419,427, column 3, line 8 and column 4, line 40. See also 4,614,758, Ex. 2. See also 6,645,637, Ex. 1 (col. 8). See also 4,966,638 (column 1, line 44 and on).

Applicants' acknowledge that some of their references do not use absolute language but applicants rely on what they call the "preponderance of the evidence". The Examiner has a different assessment of the preponderance of the evidence. She believes that the evidence indicates that often a reinforcing filler is used and that such a filler provides specific improved properties. She also believes that the evidence indicates that a such a filler is not required, that not all uses necessitate the properties associated with a reinforcing filler and that it is the choice of the final user and the desired end product of whether or not a reinforcing filler is added.

At the very least, the skilled artisan would have had an expectation of predictable results in making a silicone rubber in accordance to the modification noted supra, without a reinforcing filler, since the properties associated with such a filler are well documented. Note too that the omission of an element and its function is obvious if the function of the element is not desired. Obviously the properties associated with a

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reinforcing filler are not necessarily desired by Woerner et al. since the addition thereof is optional. Furthermore, references are not limited to their preferred embodiments and teachings of non-preferred embodiments must be considered.

With this in the Examiner's mind, the Examiner turned to the examples found in applicants' specification but this did not convince the Examiner of any unobviousness.

The examples in the specification focus on various extending fillers (top of page 13, Table 1a) and improved heat resistance associated with kaolin and surface treated kaolin. *This is the same property and benefit disclosed by Cornelius.* As such this cannot be considered an unexpected result.

The examples in the specification do not compare the claimed composition to a specific silica or reinforcing filler silicone rubber composition, which would allow the Examiner to make a direct comparison and assessment of any unexpected results regarding the addition/exclusion of a reinforcing filler. Rather than provide a specific comparative formulation of a silicone rubber with a reinforcing filler, applicants provide the "typical" property profile for a silicone rubber, found on page 11 of the specification. It would appear that applicants are relying on this data to somehow support their position of unobviousness. The Examiner has concerns regarding this data. First, the origin of this data is completely unknown. In addition the Examiner cannot determine what amount of both fillers, or even type of filler, is used. This does not indicate what silicones were used in the preparation of the rubber. Obviously a wide variety of materials are contemplated by this since there is a wide range of properties. It also is not clear if these results are post curing or post heat treatment, such as that referenced in the preceding paragraph.

The Examiner also notes that the alleged property profile is not the same as that found by the Examiner in the on-line various of the Encyclopedia Of Polymer Science and Technology. Please see that below.

Table 6. Properties of Different Classes of Silicone Rubbers^c

| Class | Hardness, durometer | Tensile strength, MPa ²¹ | Elongation, % | Compression set, % ^c | Useful temperature range, °C | | Tear strength, J/cm ^{2,22} |
|-------------------------------|---------------------|-------------------------------------|---------------|---------------------------------|------------------------------|------|-------------------------------------|
| | | | | | Min. | Max. | |
| General purpose | 40–80 | 4.8–7.0 | 100–400 | 15–50 | –60 | 260 | 0.9 |
| Low compression set | 50–80 | 4.8–7.0 | 80–400 | 10–15 | –60 | 260 | 0.9 |
| Extreme low temperature | 25–80 | 5.5–10.3 | 150–600 | 20–50 | –100 | 260 | 3.1 |
| Extreme high temperature | 40–80 | 4.8–7.6 | 200–500 | 10–40 | –60 | 315 | |
| Wire and cable | 50–80 | 4.1–10.3 | 100–500 | 20–50 | –100 | 260 | |
| Solvent-resistant | 50–60 | 5.8–7.0 | 170–225 | 20–30 | –68 | 232 | 1.3 |
| High strength flame retardant | 40–50 | 9.6–11.0 | 500–700 | | | | 2.8–3.8 |

It is important to note that applicants' alleged "typical" tensile strength and elongation at break requirement (properties associated with reinforcing fillers) are quite different from that found above. Obviously the Examiner does not know the specific compositions tested in the above Table 6 but the fact the two tables provide differing properties raises questions in the Examiner's mind.

The Examiner also notes that applicants' specification refers to Cornelius as "most representative of the above state of the art" (page 3, lines 3 and 4) but the properties associated with the composition of Cornelius are not all within the range of what applicants refer to as a typical property profile of silicone rubber. Note particularly the tensile strength properties and elongation at break after heat treatment.

In view of the concerns raised above, the Examiner cannot use the "typical property profile of silicone rubber" as found on page 11 of the specification in making a determination of unobviousness. This means that the Examiner has no silica containing silicone rubber composition with which she could make any comparisons.

Considering all that noted above the Examiner simply cannot accept applicants' position that the combined teachings of Woerner and Cornelius, as considered by one having ordinary skill in the art, require reinforcing fillers. Applicants have provided no

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persuasive evidence of unexpected results. As such the rejection of record is maintained.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARGARET MOORE whose telephone number is (571)272-1090. The examiner can normally be reached on Monday, Wednesday and Friday, 9 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Margaret G. Moore/
Primary Examiner, Art Unit 1765

Mgm
8/9/11